

### **Remarks**

Claims 9 to 21 are pending. Favorable reconsideration is respectfully requested.

Claim 9 has been rejected under 35 U.S.C. § 112 ¶ 2 for use of the term "consisting essentially of" together with the possibility of adding an antiblocking agent, this component being optional. Such claim construction has been approved by both the USPTO and by the courts for decades. The Office states that "... it is unclear how the antiblocking agent(s) can be both 'essential' and optional ...".

The term of art "consisting essentially of" is intermediate in scope between "comprising" and "consisting", and allows for the addition of components not specifically enumerated in the claims which do not materially alter the basic nature of the invention. The term "essentially" does not mean that the ingredients are essential. *See* the MPEP regarding the well recognized meaning of this transitional phrase. Optional components have always been allowed in claims regardless of whether the transitional phrase used is "comprising", "consisting essentially of", or "consisting of". There is no indefiniteness here. The claims comprehend both accelerant compositions containing an antiblocking agent and compositions containing no antiblocking agent. Withdrawal of the rejection of claims 9-21 under 35 U.S.C. § 112 ¶ 2 is respectfully solicited.

Claims 18 and 19 have been rejected under 35 U.S.C. § 112 ¶ 2, and have been amended to recite that the particular homo- or copolymers of claim 9 consist essentially of or consist of those enumerated in claims 18 and 19. Withdrawal of the rejection of these claims is also respectfully solicited.

Claims 9-18 have been rejected under 35 U.S.C. § 102(e) over Hilton et al. U.S. 6,699,915 ("*Hilton*"). Applicants respectfully traverse this rejection.

Applicants invention is directed to a redispersible powder composition containing a redispersible vinyl polymer and a setting accelerant, optionally also an antiblocking agent. This redispersible powder composition surprisingly results in a cement additive which has improved antiblocking characteristics ("BR") and sedimentation performance ("TS") as opposed to compositions where the accelerant is mixed with a redispersible polymer powder separately, or is separately added to the cementitious composition. The use of these compositions in cementitious formulations also surprisingly result in an increase in tensile bond strength, in particular, after storage of the cured (set) product under wet conditions ([0085] and Table 2). The products may be prepared by spray drying of a dispersion of one or more of the enumerated polymers together with a protective colloid and an accelerant which is an alkali metal or alkaline earth metal salt of a C<sub>1-4</sub> carboxylic acid. As is the case with all redispersible powder compositions, the constituents redisperse when added to water to form a dispersion having a particle size and particle size distribution similar to the dispersion from which they are prepared. For example, a redispersible polyvinylacetate/ethylene copolymer powder is completely different from the polyvinylacetal/ethylene powders which are not redispersible, even though they may have the same monomer content and distribution. This property of redispersible powders is well known to the skilled artisan, and is a term of art.

*Hilton* discloses pumpable cementitious foams which may contain numerous additives, including polyvinylacetate polymers, and setting accelerants, one of which is calcium formate (col. 7, l. 36). However, *Hilton* does not disclose any redispersible polymer, nor does *Hilton* disclose any redispersible powder composition. *Hilton* also does not disclose any redispersible composition containing a redispersible polymer and a setting accelerant and protective colloid. Thus, anticipation is not made out by *Hilton*. *Hilton* also does not disclose the limitation that the redispersible powder composition contain 3 to 20 weight percent of accelerant based on the weight of the powder. Rather, *Hilton* discloses use of an accelerant in amounts of 0.1% to 20%, preferably 1-5%, based on the weight of the overall cement composition, not based on the weight of a redispersible polymer powder composition, which *Hilton* does not disclose at all.

No example in *Hilton* used either a water redispersible polymer powder nor any alkali metal or alkaline earth metal carboxylate setting accelerant. The only setting accelerant used was alum, in Table 1, but this ingredient, as with all the others, was added separately. Alum does not function well in redispersible powder accelerant compositions as shown by Applicants' comparative examples.

*Hilton* does not disclose the claimed invention, and withdrawal of the rejection under 35 U.S.C. § 102(e) is solicited for this reason. Nor does *Hilton* render the invention obvious, as it could not be predicted that preparation of a redispersible powder composition containing alkali metal or alkaline earth metal carboxylate setting accelerants would improve blocking resistance or sedimentation behavior, nor tensile bond strength. Wet tensile bond strength was considerably enhanced overall as compared to the comparative example containing only a redispersible polymer (col. 2, (7d/21N) of Table 2. Although it is known that setting accelerants increase the rapidity of setting, the fact that the combination of redispersible polymer powder and accelerant into a redispersible powder composition improved tensile bond strength is most surprising, unexpected, and certainly not predictable.

In the Office Action of August 20, the Examiner states that "[r]egarding the accelerant in *Hilton*, 0.1% to 20% of accelerant with up to 12% of the powdered polymer is consistent with 3 to 20% of the accelerant based on the weight of the powdered polymer". Applicants find no basis at all in *Hilton* for "12%", except as this relates to polyvinyl alcohol, a water soluble polymer not a redispersible polymer nor even a dispersible polymer, which is used to mechanically stabilize the *Hilton* cementitious foam prior to setting. See column 4, lines 34-36. Even if *Hilton* disclosed 12% of a polymer composition, which he does not, 12% at 0.1 to 20% of accelerant is not a range of 3-20% of the claimed redispersible polymer powder composition.

The Examiner's attention is directed to the same issue which was before the Court in *Atofina v. Great Lakes Chemical Corporation*, 78 USPQ 2d 1417 (Fed. Cir. 2006). In *Atofina*, gas phase fluorination of methylene chloride with HF was claimed. The claim at issue was a

process claim which contained three distinct ranges: a temperature range of 330°C to 450°C; an oxygen to methylene chloride molar ratio of 0.1 to 5.0 percent; and a contact time of 0.01 to 10 seconds. With respect to the latter, the alleged anticipatory reference was silent, and the Federal Circuit had no hesitancy in indicating that there was no anticipation of that contact time range either literally or by inherency. The other two ranges were carefully reviewed by the Court and compared with the ranges in the reference. The Table below might be helpful in understanding the Court's holding.

Patent Claimed Range	JP Reference Disclosure		
	broadest	preferred	example
330 - 450°C	100 - 500°C	150 - 350°C	none within 330 - 450°
0.1 - 5.0 mol ratio O <sub>2</sub> /CH <sub>2</sub> Cl <sub>2</sub>	0.001 - 1	none	none within 0.1 - 5.0

Note that the claimed temperature range is completely within the references broad range of 100 - 500°C, and even overlaps the preferred range. The Court concluded that there was no anticipation, since neither endpoint of the claimed range was disclosed by the reference, and there was no actual example within the claimed range.<sup>1</sup>

The same was true for the O<sub>2</sub>/CH<sub>2</sub>Cl<sub>2</sub> mol ratio. The claimed range was not disclosed. While there was an overlap between the claimed range and the range disclosed by the reference, there were no identical endpoints, nor was any actual example within the claimed range. Thus, there was no anticipation.

Here, there is no disclosure of any redispersible polymer powder in *Hilton*. As indicated previously, redispersible polymer powders are unique polymers well known to the art, which are different from dispersible polymer powders. The Office acknowledges (page 4 of Office Action) that neither *Hilton* nor *Schad* recite redispersible polymer compositions, but

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<sup>1</sup> The Court acknowledges that an actual example (species) within the claimed range or an identical endpoint (also a species), would have anticipated. There is no such actual example here.

contends that this non-recitation is inconsequential, as "[t]he compositions are being re-dispersed in water in *Hilton* and *Schad*".

However, Applicants are not claiming a process of "re-dispersing"; they are claiming a composition containing a redispersible powder composition, itself consisting of a polymer and accelerant. When this composition is added to water, it redisperses to the same composition present before spray drying to produce the redispersible powder composition. A simple polymer powder does not do this, as is well known. Moreover, no prior art teaches a composition containing a polymer powder and accelerant in a redispersible powder composition.

The test for anticipation is one of "strict identity", *Trintec Industries, Inc. v. TOP-U.S.A. Corp.*, 63 USPQ2d 1597 (Fed. Cir. 2002). Here, there is no such strict identity. The ranges claimed are not disclosed as required by *Trintec* and *Atofina*, and there is no disclosure of any redispersible powder composition, as that term is understood by those skilled in the art, which contains both polymer powder and alkali metal or alkaline earth metal carboxylate accelerant.

Withdrawal of the rejection of the claims over *Hilton* under 35 U.S.C. § 102(b) is respectfully solicited.

Claims 9-18 have been rejected under 35 U.S.C. § 102(b) over *Schad* U.S. 5,366,550 ("*Schad*"). Applicants respectfully traverse this rejection.

*Schad* discloses cementitious compositions which may contain a "dried latex polymer" which may be a redispersible polymer powder (as some of the dried products listed at column 3, lines 17-27 are such products), and numerous other additives, including setting accelerants, one of which (calcium formate) is an alkaline earth metal carboxylate. However, like *Hilton*, *Schad* does not disclose any redispersible powder composition containing both a redispersible polymer powder and an alkali metal or alkaline earth metal carboxylate and protective colloid (all in one composition). As a result, *Schad* could not have appreciated the

unexpected benefits in blocking resistance, sedimentation, or wet tensile bond strength achieved by Applicants. *Schad* also does not disclose the amount of accelerant required by the claims, 3-20% based on the weight of the redispersible powder composition. The weight percent ranges disclosed by *Schad*, 0-3%, preferably 0.01 - 2 weight percent, are based on the total cementitious composition, not on any redispersible powder composition. As stated by *Trintec Indus., Inc. v. TOP-U.S.A. Corp.*, 63 USPQ2d 1597 (Fed. Cir. 2002), anticipation requires "strict identity". That is not the case here. Withdrawal of the rejection of the claims over *Schad* under 35 U.S.C. § 102(b) is respectfully solicited.

Claims 9-21 have been rejected under 35 U.S.C. § 103(a) over Schmitz U.S. 6,350,808 ("*Schmitz*") in combination with *Hilton* or *Schad*.

*Hilton* and *Schad* have been discussed previously. Neither reference teaches or suggests forming a redispersible powder composition containing redispersible polymer powder, protective colloid, and metal carboxylate setting accelerant.

*Schmitz* teaches the use of dispersion powders (interpreted to be redispersible polymer powders, although that is not necessarily correct) in conjunction with a protective colloid and a unique, partially acetalized polyvinyl alcohol, to improve mortars for installation of insulation panels of polystyrene or mineral fibers. *Schmitz* teaches that his compositions can be in the form of a dispersion powder, and may contain "further additives," a large "shopping list" of which are disclosed. *Schmitz* does not exemplify any powder composition containing any "further additive," much less a setting accelerant, and he thus neither directs the skilled artisan to Applicants' claimed invention, nor did he recognize the unexpected and surprising benefits flowing from Applicants' claimed invention.

More importantly, however, *Schmitz* does not teach the use of any polymer powder composition which does not contain a partially acetalized polyvinyl alcohol. The latter is the *raison d'être* for his invention. *Schmitz* showed in Table I that composition containing only redispersible powder (VDP7) or redispersible polymer powder plus additional polyvinyl alcohol

(VDP1-VDP6) are not suitable for use in his invention. Thus, *Schmitz* teaches away from the use of a redispersible powder composition which does not contain a partially acetalized polyvinyl alcohol. Teaching away is strong evidence of non-obviousness. *W.L. Gore v. Garlock*, 220 USPQ 303 (Fed. Cir. 1983).

In the Office Action on page 5, the Examiner states that there is no description in the specification defining "consisting essentially of". Such a definition is not required, and has never been required. It is always an option for patent applicants to amend the claims' transitional phrases without this literal language being present in the specification. Thus, "characterized in that" may be amended to "comprising"; "having" may be amended to "containing"; and "comprising" may be amended to "consisting essentially of" or "consisting of", without limitation. The scope of "consisting essentially of" is established during prosecution of the patent application, not in the specification. Patent applications are drafted in view of the prior art known to the applicants/inventors, not in view of art not known to them. Thus, it is frequently necessary to limit claims by the use of transitional phrases or inner transitional phrases (such as "selected from the group consisting of") to further narrow the claims in view of art cited during examination but formerly unknown to the Applicants. This is well established practice.

The Office further states that a partially acetalized polyvinyl alcohol is still a polyvinyl alcohol. This is incorrect: *Schmitz* indicates that acetalized polyvinyl alcohols are very different from polyvinyl alcohols. Moreover, when polyvinyl alcohols are present in the subject invention, they serve as a protective colloid, necessary to form a redispersible polymer powder. Protective colloids are added during spray drying. Polyvinyl alcohols are polyvinyl alcohols, unless prefaced with such terms as "modified", or "partially hydrophobic, etc. Those skilled in the art recognize that polyvinyl alcohols, especially partially hydrolyzed polyvinyl alcohols, may retain unhydrolyzed ester groups such as vinyl acetate groups, but if other groups are also contained, these must be appropriately specified.

*Schmitz* clearly indicates that his partially acetalized polyvinyl alcohols are not protective colloids. In all parts of the specification, *Schmitz* distinguishes protective colloids

from partially acetalized polyvinyl alcohols. *Schmitz* states that the latter are water soluble, and are necessary to provide adequate adhesion of his cementitious compositions. Thus, *Schmitz* himself indicates that such compounds materially affect the basic nature of such compositions, and are therefore excluded by the present claims which use "consisting essentially of", and even more particularly, the claims which use the "consisting of" transitional or inner transitional phrase.

Moreover, since *Schmitz's* partially acetalized polyvinyl alcohols are not protective colloids, and as they are not composed of the monomers of Applicants' claims, the list of which is prefaced by the "closed" inner transitional phrase "selected from the group consisting of", Applicants' claims do not allow for the presence of such compounds. It is also noted that even disregarding Applicants' closed list of monomers, *Schmitz's* partially acetalized polyvinyl alcohols are excluded because they are water soluble. A redispersible polymer powder must contain water-insoluble particles; soluble particles cannot be redispersed – rather, they dissolve.

Finally, it is again emphasized that none of *Hilton*, *Schad*, or *Schmitz*, whether considered alone or in combination, teach or suggest the preparation and use of an accelerant composition where both the redispersible polymer and the accelerant are present in the form of a redispersible powder.

Applicants submit that the claims are now in condition of Allowance, and respectfully request a Notice to that effect. If the Examiner believes that further discussion will advance the prosecution of the application, the Examiner is highly encouraged to telephone Applicants' attorney at the number given below.


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Respectfully submitted,

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